



# JOINT ECONOMIC COMMITTEE

JIM SAXTON, CHAIRMAN

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## ECONOMIC CONSEQUENCES OF HURRICANES KATRINA AND RITA -- AN UPDATE

### Local Effects

On Monday, August 29, 2005, Hurricane Katrina slammed into Southeast Louisiana and coastal Mississippi. On the following day, three levees failed, flooding about 80 percent of New Orleans.

On September 5, 2005, the Army Corps of Engineers made temporary repairs to these breeches and began to pump water from the city into Lake Pontchartrain. The city was dry by September 20, 2005.

On Saturday, September 24, 2005, Hurricane Rita hit Southeast Texas and Southwest Louisiana. The temporary patch on the levee on the east bank of the Industrial Canal failed, reflooding about 20 percent of New Orleans. The Corps has repatched this levee and is now pumping water from the city into the lake. The Corps expects that all of the city will be dry within a week.

According to Risk Management Solutions, Katrina caused privately insured losses of **\$40 billion to \$60 billion**, of which \$15 billion to \$25 billion is attributable to the New Orleans flood. Rita inflicted privately insured losses of **\$4 billion to \$7 billion**. Total economic losses from both hurricanes may total **\$125 billion**.

### Macroeconomic Effects

Katrina and Rita are likely to have significant, but transitory effects on the U.S. economy. Through September 29, 2005, 274,000 workers had filed for unemployment benefits due to either Katrina or Rita.

The National Association of Business Economists forecast that both hurricanes would reduce the annualized real GDP growth rate by 0.4 percent in the third quarter of 2005

and by 0.2 percent in the fourth quarter of 2005. In 2006, however, recovery-related reconstruction activities are likely to boost real GDP growth and employment above previous forecasts.

### Energy Effects

#### Crude Oil and Petroleum Products.

The Gulf of Mexico normally produces 1.5 million barrels of crude oil per day, or about 28.5 percent of U.S. crude oil production. On August 30, 2005, Katrina shut-in 95.2 percent of normal crude oil production in the Gulf of Mexico. The proportion of shut-in crude oil production fell to 55.8 percent on September 19, 2005. Rita increased the proportion of shut-in crude oil production to 100 percent on September 24, 2005. The proportion of shut-in crude oil production fell to **98.6 percent** on September 29, 2005.

Gulf Coast refineries account for 47.4 percent of U.S. refining capacity. Katrina inflicted significant damage on four refineries in Southeast Louisiana and Mississippi with a combined capacity of 879,000 barrels per day, or 5.2 percent of U.S. refining capacity. These refineries are likely to remain closed from one to four months. Other refineries in Southeast Louisiana and the Midwest that had closed because of Katrina have reopened.

At its peak, Rita closed 16 refineries in greater Houston, Southeast Texas, and Southwest Louisiana with a combined capacity of 4.0 million barrels per day, or 23.6 percent of U.S. refining capacity. On September 28, 2005:

- Eight of these refineries in the greater Houston area with a combined capacity of 1.9 million barrels per day, or 10.9

percent of U.S. refining capacity, have restarted.

- Six refineries in the greater Houston area, Southwest Louisiana and Southeast Texas with a combined capacity of 1.6 million barrels per day, or 9.8 percent of U.S. refining capacity, have lost electricity or suffered minor damage. These refineries are likely to restart next week.
- Two refineries in Southeast Texas with a combined capacity of 489,000 barrels per day, or 2.9 percent of U.S. refining capacity, have suffered significant damage. These refineries are likely to remain closed from one to four months.

In summary, twelve refineries remain closed because of the hurricanes. **Six** of these refineries with a capacity of **1.6 million** barrels per day, or **9.8 percent** of U.S. refining capacity, **are likely to restart next week**. **Six** other closed refineries with a capacity of **1.4 million** barrels per day, or **8.0 percent** of U.S. capacity, **are likely to remain closed from one to four months**.

**Natural Gas.** The Gulf of Mexico normally produces 10.4 billion cubic feet of natural gas per day, or 19.2 percent of U.S. natural gas production. On August 30, 2005, Katrina shut-in 88.0 percent of normal natural gas production in the Gulf of Mexico. The proportion of shut-in natural gas production fell to 33.8 percent on September 19, 2005. Rita increased the proportion of shut-in natural gas production to 80.5 percent on September 25, 2005. The proportion of shut-in natural gas production slipped to **79.8 percent** on September 29, 2005.

**Imports and Pipelines.** Rita, shut a number of crude oil and petroleum product pipelines. Most crude oil and petroleum product pipelines have reopened, but some are operating at less than 100 percent of capacity due to a lack of supply.

Because of a lack of supply, storm damage, or a lack of electricity, **twelve natural gas pipelines and processing plants**

with a capacity of more than 10 billion cubic feet per day are currently closed or operating at less than full capacity. The loss of supply from the Gulf of Mexico appears to be a more serious problem for natural gas pipelines than for crude oil and petroleum product pipelines.

Gulf Coast ports handle about 60.4 percent of U.S. crude oil imports. The Louisiana Offshore Oil Port, which can handle **906,000** barrels per day, or **8.5 percent** of U.S. imports, reopened on September 25, 2005.

Two of the five facilities for importing liquefied natural gas (LNG) are in Southwest Louisiana. These facilities with a combined capacity of 1.5 billion cubic feet per day suffered minor damage and should reopen quickly.

**Energy Prices.** The disruptions in production and distribution from Katrina caused energy prices to increase. The spot price of crude oil peaked at \$69.82 per barrel on August 30, 2005.

On that day, the International Energy Agency declared an emergency and directed the United States and twenty-five other member-states to release 2 million barrels per day over the next 30 days from their crude oil and petroleum product reserves. Additionally, the United States has lent 13.2 million barrels of crude oil to refiners from its Strategic Petroleum Reserve.

These actions caused energy prices to ease. By September 15, 2005, the spot price of crude oil had declined by 9.6 percent to \$63.12 per barrel.

Fears about new production and distribution disruptions from Rita temporarily reversed these spot price declines. From September 15, 2005, to September 29, 2005, the spot price for crude oil rose by 6.0 percent to **\$66.80 per barrel**.

Retail gasoline prices tracked the swing in crude oil prices. The U.S. Energy Information Agency reported that the weekly average retail price for regular unleaded

gasoline peaked at \$3.07 per gallon on September 5, 2005. The weekly average retail price fell by 9.2 percent to \$2.79 per gallon on September 19, 2005, as supply constraints from Katrina eased. New supply interruptions from Rita barely increased the weekly average retail price by 0.6 percent to **\$2.80 per gallon** on September 26, 2005.

Natural gas prices have behaved similarly to crude oil and petroleum product prices after Katrina. This hurricane pushed the spot price of natural gas up to \$12.65 per million British thermal units (BTUs) on August 31, 2005. Following this peak, the spot price fell by 15.1 percent to \$10.74 per million BTUs on September 12, 2005.

However, Rita's effect on the natural gas market has been greater than its effect on the crude oil and petroleum product markets. Because of the paucity of LNG terminals, the United States cannot substitute imports for lost domestic production of natural gas as easily as it can substitute imports for lost domestic production of crude oil or petroleum products.

Because the New York Mercantile Exchange suspended natural gas spot trading,<sup>1</sup> this report uses the trend in the futures price for the first expiring contract to assess Rita's effect on natural gas prices. From \$10.76 per million BTUs on September 13, 2005, the futures price rose by 31.9 percent to **\$14.20 per million BTUs** on September 29, 2005.

### Transportation and Trade Effects

Gulf Coast ports are critical for international trade. In terms of cargo volume, the Ports of Baton Rouge, South Louisiana, and New Orleans when combined are the fourth busiest port in the world and the busiest in the United States, handling 312 million metric tons in 2003. The Port of

Houston is the sixth busiest in the world and the second busiest in the United States, handling 173 million metric tons in 2003.

The Ports of Baton Rouge, New Orleans, and South Louisiana are operating. The lower Mississippi River, the Industrial Canal, and most of the Gulf Intercoastal Waterway are open for navigation, but deep draft vessels are restricted to daylight travel.

The Ports of Baytown, Corpus Christi, Freemont, Galveston, Houston, and Texas City are open. Port Arthur is closed.

Katrina severed major cross-country road and rail links. Because of significant damage to bridges, Louisiana closed Interstate 10 from New Orleans to Slidell; Mississippi closed U.S. 90 from Ocean Springs to Waveland; and CSX Transportation closed its rail line from New Orleans to Pascagoula, Mississippi. These facilities may not reopen for several months.

### Conclusion

Hurricanes Katrina and Rita will temporarily reduce economic and employment growth through the end of 2005, but economic and employment growth are likely to rebound in 2006. Oil and natural gas production and distribution are recovering from severe disruptions. The U.S. economy has displayed remarkable resilience in absorbing the effects of these two hurricanes.

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<sup>1</sup> The New York Mercantile Exchange suspended spot trading of natural gas because the closure of the Henry Hub in Louisiana prevented physical deliveries of natural gas.

